

Bradley Lawton of Star Cutter

Continuing our series of interviews with industry leaders, Gear Technology spoke recently with Bradley Lawton, executive vice president of Star Cutter Co., about the role and direction of cutting tools in the gear industry today.

GT: Star Cutter Company has been in the cutting tool business since 1927 and the machine tool business since 1958. What kind of changes have you seen in these industries?

BL: With regard to cutting tools, it's been a very competitive market. In the last 15 to 20 years, it probably has been impacted the most by the development of tool coatings. As that occurred, there was increased emphasis on materials, design of product, and without question, the use of these technologies to improve the overall performance of the tool. Going back 20 years and before, I don't think that the tool performance was as important as it seems to be in today's marketplace. And it all relates to the advancing technologies that I've mentioned.

The biggest single change in cutting tools is how fast technology moves today as compared to 20 years ago. And the same can be said for the machine tool industry, with the advancements of CNC to get the performance out of the mechanical functions of the machine. And of course, all of this is linked together by quality. Any company today has to have a concerted effort for quality and a continuous improvement aspect in its corporate philosophy.

GT: What do you see as the next improvement in cutting tool technology?

BL: I think it's a continuation of what's been done in the past—sometimes termed "peeling the onion." We're tak-



Bradley Lawton

ing one small step at a time with that effort, looking at our customers' needs for increased production, longer tool life and lower cost per piece. We see such things as new materials, new coatings or combinations of both that can be applied to each application to come up with an improved performance.

GT: If you could make one giant step in cutting tool technology, if you had the ability to make this change overnight, what would you do?

BL: I have to look back in history and say, "What were some of those big steps?" Big steps would have been, for example, from high speed steel to carbide, or high speed steel uncoated to high speed steel coated. I certainly don't have a crystal ball to say that none of those opportunities are in the future, but I'll go out on a limb and say that we won't see the dramatic increases in tool performance that we once saw. There will be combinations of coatings, new and interesting coatings, but they will be much more niche-oriented.

GT: Is there anything along those lines that you see being especially good for the gear industry and for gear cutting?

BL: For gear cutting, I see progress with coatings, and I see materials with increased toughness versus hardness. That combination will provide gear cutting tools with improved performance. Again, that performance improvement will not be as dramatic as we have seen at other times, but every little bit helps, and I think that's part of our responsibility, to present that to the marketplace.

GT: Star Cutter was founded as a cutting tool manufacturer. Now your operations have branched into coatings and the manufacture of machine tools. How did that come about?

BL: We first started out supplying re-manufactured sharpening machines to our gear hob customers. We've expanded upon that by formalizing a separate machine tool division with a separate facility and a full engineering staff. Today, we manufacture a line of CNC tool grinding equipment that can be used for manufacturing cutting tools or for sharpening or resharpening cutting tools. It's a quite diversified line of equipment, and it can be used for end mills, special drills, special reamers, step tools and broaches as well as gear hobs.

GT: In one division you're trying to sell cutting tools, and in another you're trying to sell the machines that are capable of manufacturing the cutting tools. Are your divisions competing against one another?

BL: We could certainly stand back and say, "Why should we manufacture machines that other people can use to

manufacture tools that might in fact compete with us?" I think the truth is that any modern day manufacturer has to look at a product line from the standpoint of saying he may have conflicts of interest within his own group. Those conflicts of interest, if properly administered, can be a benefit to the company rather than a negative. We saw from our customer base a definite need for utilizing advancing technologies, and we are able to come to the customer with a

machine and a cutting tool that are more friendly to his needs.

GT: It's been suggested that today's machine tools are having a hard time keeping up with the technology of the cutting tools. Do you agree?

BL: No, I don't. I'm not saying that there are not certain applications where that may be the fact, but I think that in an overall broad sense, cutting tools and machine tools are advancing at a very

rapid pace. They're both in the race together. I don't see very many machine tools without a cutting tool, and vice versa. So, it's a much more even situation than what it has been in the past.

GT: What about machine speeds? We've heard that today's cutting tools are capable of higher spindle speeds than the machines they are being used on. Do you agree with that statement?

BL: Again, I think I'd refer to the application. If we're talking about cutting a gear that could be cut with a high performance hob, and the machine was limited in its spindle speeds or table speeds, then I would certainly agree with that statement. But in some cases, the machines have been more advanced. Correspondingly, we've had to work on those applications to press ourselves and our tools to meet the demands of the machine and the potential of production of the customer. It's a hand-in-hand situation.

GT: What is your take on the "disposable" cutting tools on the market?

BL: Well, the disposable tool by Star Cutter Company's definition is a high performance hob. A high performance hob becomes disposable after one application or one use when the customer has increased his return on his investment beyond the point of requiring resharpener. And it's certainly totally at the discretion of the customer. We do not manufacture by design a tool that is not resharpenable. But it is certainly disposable, if that is the wish of the customer, and he's received the return on his investment. We prefer to approach the marketplace with the concept of a high performance hob. The decision whether it's disposable or whether it's resharpenable is really the decision of the customer. We manufacture our product to be resharpened.

GT: How are you changing to keep up with the demands of the marketplace?

BL: We're advancing in materials. We have our own carbide facility, which is able to provide us with carbide for our

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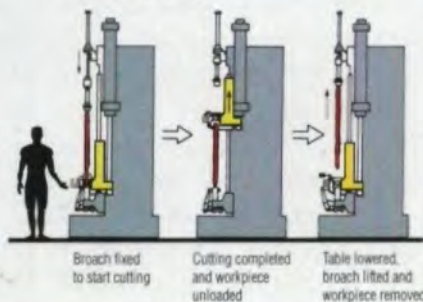
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drill and reamer division and also at the same time provide us with current material for our carbide hobs in the gear cutting market. At the same time, we have our coatings division—thin film coatings—and we are advancing through research and development towards new and better coatings for all of our product lines.

GT: What about the overseas markets. What are their demands?

BL: We're working very diligently to increase our global presentation. Far and away, the majority of our business has been domestic, but we look to the global market as being an increasing part of Star Cutter's business. International use of hobs has focused on the inserted blade or built-up hob. In the past few years that has been changing. That technology has been moving more towards a solid hob, the product that has been more generic to the U.S. market.

GT: Do you see the international market progressing toward where the U.S. market is?

BL: No, I think it's a marriage of technologies, that marriage being the recognition of the rigidity of the solid hob and the advancements in the equipment to be used in international markets. Coatings certainly are a major part of that. I think domestically our marketplace utilizes coatings to a greater extent than international markets do. I think the domestic market utilizes recoating of tools, where on an international basis, that has not been a prime consideration to reducing tool costs.

GT: How important is the gear industry to your company?

BL: The gear industry has been a primary part of the growth of Star Cutter Company, because the company was founded on form relief cutters and gear hobs, and we have been a continuous supplier to the industry. I would consider the gear industry the cornerstone of our company, and I see that role continuing. I feel strongly that as long as there is a gear industry, Star Cutter will be involved.

GT: The gear industry is often regarded as a kind of big family where everyone knows everyone. Do you perceive it that way?

BL: Having just come from the AGMA annual meeting, I would certainly share that perception, because I thought it was an excellent meeting and an opportunity for all those people who depend upon the industry to get together and share concepts of growth and progress. I really feel that the gear industry has

stepped itself up a number of notches on the ladder of success and said, "Hey, as we look at ourselves and we know we have to restructure, there are a lot of ways to do it." And a lot of those ways were shared at this meeting.

GT: How do you perceive AGMA's role in the gear industry?

BL: I perceive AGMA to be a key to the future success of the domestic gear industry. It provides a forum for the

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candid sharing of ideas. We can sit in a meeting and share different approaches to employee relations, the importance of quality, the importance of recognizing a global market rather than a domestic market. These are all very, very important concepts for the future success of the American gear industry.

GT: Some say there is a belief that the gear industry has been slow to accept new technologies, especially

when compared to other machining industries. Do you agree?

BL: No. If Star Cutter's participation in the application of coatings is an example, the gear industry has been advanced compared to drills, end mills and reamers. When titanium nitride coatings first came on the market, their first applications were for gear cutting tools because of the high cost of those tools versus the cost of standard high speed steel end mills or reamers. The gear industry

experienced tremendous cost improvements because of the extended tool life and production performance of a coated tool compared to an uncoated tool.

GT: What advice would you give to young people interested in pursuing a career in your industry?

BL: I would say to any youngster considering going into the cutting tool industry or the gear cutting industry, go into it with an enthusiasm that is there for the long term. Don't go for the short term. What is the difference between success and failure? Dedication, simply dedication and a willingness to push oneself beyond the current understandings.

GT: Would you say that this is an exciting time to be involved in the gear industry?

BL: Personally, I think it's very exciting. I happen to enjoy the technology that I've been involved in for 30 years and to be able to see the growth in the industry, to see the change in the industry and to see the enthusiasm that we currently have. It wasn't too many years ago that we were labeled as a dying group, and maybe we are, but I don't think so. I believe the involvement of everybody at the recent AGMA meeting demonstrated otherwise.

GT: Can you point to anything that caused these changes in attitudes?

BL: I think it's a basic recognition that if we expect to survive in this technology race, we cannot look at ourselves as being good enough. We have to look at ourselves from the viewpoint of how good we can be. That certainly was clearly voiced at the AGMA meeting. As evidenced by the excellent turnout, everybody felt strongly that they knew they were going to change and they wanted to get across as many ideas as possible as to how to do it and how to be successful in it. ⚙

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